Anatomy of strand plants.—The eastern shore of Madagascar, characterized by uniformly high temperature, constant winds, and considerable rainfall, has as its principal strand communities two associations characterized respectively by *Ipomea Pes-caprae* and *Barringtonia*. The plants of the former have been examined by DENIS,[7] who finds them, thus exposed to conditions of high transpiration, induced by great insolation and rapid air movement, almost without any special development of epidermal protection, but possessing varying degrees of fleshiness with water-storing tissue rather well developed. One group shows isolateral fleshy structure with the water tissue centrally placed, another possesses bifacial leaves, less fleshiness, and peripheral water tissue. These structural tendencies toward fleshiness are related by the author to the saline character of the beach; the development of water-storing tissue and the early lignification of the roots to the high rate of transpiration; and the abundance of palisade tissue to brilliancy of both the direct and the reflected sunlight. The details of structure are given in the text and in the drawings of leaf sections.—GEO. D. FULLER.

Snow and timber line.—From studies made in the Pyrenees, BOUGET[8] has reached conclusions regarding the influence of snow upon alpine and subalpine vegetation not unlike those of SHAW[9] from a study of the Selkirks more than a decade ago. In the higher altitudes the duration of the snow is related to the local topographic relief, and its persistence during the growing season profoundly influences the character of the vegetation. In depressions it collects during the winter and remaining late in the season gives rise to a rather mesophytic herbaceous community consisting of a mixture of lowland and alpine forms. In contrast, the relative absence of snow upon the ridges and at the same altitude produces a xerophytic vegetation in which trees and woody plants are conspicuous. Thus the upper limit of trees or timber line is much higher upon ridges than along depressions.—GEO. D. FULLER.

Action of enzymes on cellulose.—PRINGSHEIM and MAGNUS-VON MERKATZ[10] point out that dextrines from both starch and glycogen are split to maltose by diastase. They raise the question whether diastase has a similar effect on cellulose dextrine. By using MADSEN'S acetylization method they gained cellulose dextrine from cotton that was soluble in water and

---

[7] DENIS, MARCEL, Recherches anatomiques sur quelques plantes littorales de Madagascar. Rev. Gén. Botanique **31**:33–52, 115–120, 129–142. *pl. 1. figs. 12.* 1919.

[8] BOUGET, J., De l'influence des neiges sur la répartition des différents végétaux à mène altitude dans les zones élevées des Pyrénées. Rev. Gen. Bot. **30**:305–320. 1918.

[9] SHAW, C. H., The causes of timber line on mountains; the rôle of snow. Plant World **12**:169–181. *figs. 4.* 1909.

[10] PRINGSHEIM, H., and MAGNUS-VON MERKATZ, A., Fermentversuche an Zellulose abbauprodukten. Hoppe-Seyler Zeit. Physiol. Chem. **105**:173–178. 1919.

gave no osazone reaction. The dextrine thus obtained is strongly reducing to Fehling's solution, and is considered by the authors as the end dextrine of cellulose. Diastase will not split cellulose dextrine. They also derived zellobiose by the MADSEN method. The contents of the first stomach of cattle, the intestine, and the pancreas bore no enzyme that would split zellobiose. They conclude that the splitting of this substance in the alimentary canal of the cattle must be due to cellulose bacteria.—WM. CROCKER.

Ecological diversity and generic coefficients.—The principle first enunciated by JACCARD, and noted in this journal,[11] that the ratio between species and genera, or the generic coefficients, varies inversely with the diversity of the habitat conditions, has received additional support from the investigations of DUFRENOY[12] upon the distribution of parasitic fungi in different habitats. Diversity of ecological conditions was found at altitudes of 1100 m. to 2000 m. in the valley of Barèges, where the generic coefficient for rusts was 20 per cent and for all fungi 40 per cent. Contrasted with this were the uniform conditions in a wheat field showing generic coefficients for its fungi of 70 per cent, and upon sand dunes with coefficients ranging from 90 to 100 per cent.—GEO. D. FULLER.

Lignins.—PRINGSHEIM and MAGNUS,[13] in a study of lignins, have obtained some interesting results. When wood or straw is treated with sodium hydrate in the cold, all the acetic acid liberated is derived from the lignins of these materials. When these materials are boiled with sodium hydrate, either under pressure or otherwise, most of the acetic acid formed is derived from the lignins; but a small part is derived from the cellulose and none from the pentoses. The lignin of the white beech yields about 37.85 per cent of its weight of acetic acid, and the lignin of conifer wood about 19.48 per cent. —WM. CROCKER.

Dioecism in Thalictrum.—SCHAFFNER[14] has studied *Thalictrum dasycarpum* in reference to intergrades between the monoecious and dioecious condition. It seems to be a peculiarly favorable form for this purpose, and almost every conceivable intermediate in the expression of "maleness" and "femaleness" was found. The author rightly calls attention to the fact that the physiological and ecological factors concerned in these various expressions must be taken into consideration for an understanding of the evolutionary changes leading from the bisporangiate to the monosporangiate condition.—J. M. C.

---

[11] BOT. GAZ. **57**:540. 1914.

[12] DUFRENOY, J., Diversité écologique et coefficients génériques. Bull. Trim. Soc. Mycol. Fr. **35**:27–46. 1919.

[13] PRINGSHEIM, H., and MAGNUS, H., Über den Acetylgehalt des Lignins. Hoppe-Seyler Zeit. Physiol. Chem. **105**:179–186. 1919.

[14] SCHAFFNER, J. H., Dioeciousness in *Thalictrum dasycarpum*. Ohio Jour. Sci. **20**:25–34. 1919.